



# PUBLIC NOTICE

Federal Communications Commission  
445 12<sup>th</sup> St., S.W.  
Washington, D.C. 20554

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DA 11-447  
March 10, 2011

## FCC SEEKS COMMENT ON RECOMMENDATIONS APPROVED BY THE ADVISORY COMMITTEE FOR THE 2012 WORLD RADIOCOMMUNICATION CONFERENCE

IB Docket No. 04-286

**Comment Date: March 25, 2011**

On March 8, 2011, the Advisory Committee for the 2012 World Radiocommunication Conference (WRC-12 Advisory Committee or WAC) approved and provided for Commission consideration its recommendations on a number of issues that will be considered by the 2012 World Radiocommunication Conference (WRC-12). These recommendations are attached to this Public Notice (Attachment 1).

Based upon an initial review of the recommendations forwarded to the Commission, the International Bureau, in coordination with other Commission Bureaus and Offices, tentatively concludes that we can generally support most of the attached WRC-12 Advisory Committee recommendations. We also take note of differing views expressed by the WRC-12 Advisory Committee in documents WAC/128 and WAC/129. We seek comment on the recommendations provided by the WRC-12 Advisory Committee (Attachment 1). The FCC also seeks comment on the attached draft proposals that have been provided to the FCC by the National Telecommunications and Information Administration (NTIA) (Attachment 2). Finally, the FCC seeks comment on the International Bureau's initial conclusions with regard to the WRC-12 Advisory Committee recommendations.

The comments provided by interested parties will assist the FCC in its upcoming consultations with the U.S. Department of State and NTIA in the development of U.S. positions for WRC-12. The recommendations that are attached to this Public Notice may evolve in the course of interagency discussions as we approach WRC-12 and, therefore, do not constitute a final U.S. Government position on any issue.

The complete text of these preliminary views and proposals is also available in the FCC's Reference Information Center, Room CY-A257, 445 12th Street, SW, Washington, DC 20554 or by accessing the FCC's WRC-12 web site at: <http://www.fcc.gov/ib/wrc-12/>.

The deadline for comments on the proposed preliminary views is March 25, 2011. It is necessary that all comments be received by March 25, 2011, in order to allow sufficient time to finalize the U.S. position before commencement of regional WRC-12 preparatory meetings.

All comments should refer to IB Docket No. 04-286 and to specific recommendations by WAC document number. Comments may be filed using (1) the Commission's Electronic Comment Filing System

(ECFS), (2) by email to [wrc-12@fcc.gov](mailto:wrc-12@fcc.gov), or (3) by filing paper copies.<sup>1</sup> Generally, only one copy of an electronic submission must be filed.

Comments filed through the ECFS can be sent as an electronic file via the Internet to <http://www.fcc.gov/cgb/ecfs/>. In completing the transmittal screen, commenters should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to [ecfs@fcc.gov](mailto:ecfs@fcc.gov), and should include the following words in the body of the message, "get form." A sample form and directions will be sent in reply.

Parties who choose to file by paper must file an original and four copies of each filing.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

The Commission's contractor will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 445 12th Street, SW, Room TW-A325, Washington, DC 20554. The filing hours at this location are Monday through Friday, 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building.

Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

U.S. Postal Service first-class mail, Express Mail, and Priority Mail should be addressed to FCC Headquarters at 445 12th Street, SW, Washington, DC 20554.

Additionally, filers must deliver courtesy copies by email to the following Commission staff: Alexander Roytblat, at [Alexander.Roytblat@fcc.gov](mailto:Alexander.Roytblat@fcc.gov)

People with Disabilities: To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to [fcc504@fcc.gov](mailto:fcc504@fcc.gov) or call the Consumer and Governmental Affairs Bureau at (202) 418-0530, (202) 418-0432 (TTY).

**- FCC -**

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<sup>1</sup> See Electronic Filing of Documents in Rulemaking Proceedings, 63 Fed. Reg. 24121 (1998).

**ATTACHMENT 1**  
**to FCC Public Notice DA 11-447**

**Recommendations presented at  
8 March 2011 Meeting of  
the Advisory Committee for  
the 2012 World Radiocommunication Conference**

## **Maritime Aeronautical and Radar Services**

UNITED STATES OF AMERICA

Draft Proposals for the Work of the Conference

**Agenda Item 1.21:** *to consider a primary allocation for radiolocation services in the band 15.4-15.7 GHz, taking into account the results of ITU-R studies, in accordance with Resolution 614 (WRC-07)*

**Background Information:** Resolution 614 (WRC-07) calls for WRC-12 to consider a new primary Radiolocation Service (RLS) allocation in the band 15.4-15.7 GHz to provide additional spectrum for new radar systems, to enhance surveillance, mapping, navigation and weather observation. The additional bandwidth will provide greater image resolution, improve range accuracy, allow for greater radar density, improve interference performance, lower system costs, and increase ability to collect more information about an object or area observed by a radar. Operation of these radars must not adversely affect other co-primary services in the band, or the radio astronomy service in the adjacent band, 15.35-15.40 GHz. This proposal also takes into account the need for an allocation in the range 15.4-15.6 GHz to address the requirements of mobile-satellite service systems under WRC-12 Agenda item 1.25. A separate, complimentary proposal under Agenda item 1.25 makes the allocation to the mobile-satellite service in the range 15.4-15.6 GHz.

Note: This proposal represents a compromise approach between agenda items 1.21 and 1.25 within IWG-1 and IWG-3. It assumes that a companion proposal under Agenda Item 1.25 that provides for a Mobile Satellite Service (MSS) allocation in the 15.4-15.6 GHz band is also adopted. The difference between this document and document IWG-1/53r1 is addition of the following proposals:

1. USA/AI1.21/4 adds a footnote to protect MSS receivers from RLS interference.
2. USA/AI1.21/5 adds a footnote that invokes a resolution for administrations who MSS Earth Stations in the 15.4-15.6 GHz band to provide information to administrations operating or planning to operate RLS stations that will help mitigate interference to RLS receivers. It also calls upon the ITU-R to conduct sharing and compatibility studies between RLS stations and MSS networks.

If this document and the companion proposal under Agenda Item 1.25 are both adopted, the authors of this proposal withdraw document IWG-1/53r1.

**Proposal:**

**MOD USA/AI1.21/1**

15.4-18.4 GHz		
Allocation to services		
Region 1	Region 2	Region 3
15.4-15.43	AERONAUTICAL RADIONAVIGATION <u>ADD RADIOLOCATION ADD 5.A121 ADD 5.B121 ADD 5.C121</u> 5.511D <u>ADD 5.D121</u>	
15.43-15.6	FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION <u>ADD RADIOLOCATION ADD 5.A121 ADD 5.B121 ADD 5.C121</u> 5.511D <u>ADD 5.D121</u>	
15.6-15.63	FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION <u>ADD RADIOLOCATION ADD 5.A121 ADD 5.B121</u> 5.511C	
15.63-15.7	AERONAUTICAL RADIONAVIGATION <u>ADD RADIOLOCATION ADD 5.A121 ADD 5.B121</u> 5.511D	

**Reason:** This allocation will provide additional spectrum for new advanced radar systems. This allocation will support modern radars that employ sophisticated techniques for surveillance, mapping, navigation and weather observation. The additional bandwidth will provide greater image resolution, improve range accuracy, allow for greater radar density, improve interference performance, lower system costs, and increase ability to collect more information about an object or area observed by a radar.

**ADD USA/AI1.21/2**

**5.A121** In the band 15.4-15.7 GHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, stations operating in the aeronautical radionavigation service.

**Reason:** This footnote preserves the regulatory status and minimizes the impact to one of the incumbent radio services.

**ADD USA/AI1.21/3**

**5.B121** In order to protect the radio astronomy service in the band 15.35-15.4 GHz, radiolocation stations operating in the 15.4-15.7 GHz band shall not exceed the power flux density level of -156 dB(W/m<sup>2</sup>) in the 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2% of the time.

**Reason:** This footnote minimizes the impact to radio astronomy service.

**ADD USA/AI1.21/4**

**5.C121** Stations in the radiolocation service shall not exceed a power flux density level of XX dB(W/m<sup>2</sup>/MHz) at the satellite receiver antenna for MSS satellite networks in the geostationary arc that have been brought into use and/or notified under the Radio Regulations.

**Reason:** This footnote prevents harmful interference to operational MSS satellite receivers.

**ADD** USA/AI1.21/5

**5.D121** Resolution [RLS-MSS] (WRC-12) applies to stations in the radiolocation service and in the mobile-satellite service in the band 15.4-15.6 GHz.

**Reason:** This footnote provides mechanisms to prevent harmful interference between the radiolocation service and in the mobile-satellite service in the band 15.4-15.6 GHz.

**SUP** USA/AI1.21/6

## RESOLUTION 614 (WRC-07)

### Use of the band 15.4-15.7 GHz by the radiolocation service

**Reason:** Resolution 614 is no longer relevant since the requested studies have been completed.

**ADD** USA/AI1.21/7

## RESOLUTION [RLS-MSS] (WRC-12)

### Radiolocation and mobile satellite service sharing and compatibility in the frequency band 15.4-15.6 GHz

The World Radiocommunication Conference (Geneva, 2012),

#### *considering*

- a) the band 15.4-15.7 GHz was allocated to the radiolocation service (RLS) on a primary basis by World Radiocommunication Conference -2012;
- b) the band 15.4-15.6 GHz was allocated to the mobile-satellite service (MSS) on a primary basis by World Radiocommunication Conference -2012;

#### *recognizing*

- a) that ITU-R studies have shown the potential for interference between the radiolocation and mobile-satellite service when they are co-frequency;
- b) the need for RLS and MSS stations and networks to operate without causing harmful interference to each other in the band 15.4-15.6 GHz;

#### *resolves*

- 1 that, upon receiving a request from an administration operating or planning to operate RLS stations in the 15.4-15.6 GHz band, administrations who are operating mobile-satellite earth stations

(MES) in the band 15.4-15.6 GHz shall provide the following information to the requesting administration within 60 days of receiving the request:

- MES operational locations or service areas, such that RLS station operators are able to avoid receiving interference from MESs;
  - Operational MSS satellite receiver locations, such that RLS station operators are able to avoid interfering with MSS satellite receivers;
- 2 to invite ITU-R as a priority, to conduct sharing and compatibility studies between RLS stations and MSS networks with a view towards defining operational and technical sharing recommendations that provide mutually adequate access to the band 15.4-15.6 GHz;

*invites administrations*

to contribute to these sharing and compatibility studies;

*invites ITU-R*

to complete the necessary studies and create recommendations as a matter of urgency.

**Reasons:** This resolution provides a method for radiolocation service and mobile satellite service sharing of the band 15.4-15.6 GHz and guidance to the ITU-R on conducting studies to produce final recommendations.

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**DOCUMENT WAC/122(08.03.11)**

***Comments of the IWG-1 on NTIA Proposal for Agenda Item 1.4 (Res. 417)  
contained in Document WAC-092***

In *resolves* 4 of Resolution 417, as proposed to be modified, there are new limits on the e.i.r.p. from AM(R)S ground and airborne stations to facilitate sharing between AM(R)S systems operating in the band 960-1164 MHz and RNSS systems operating in the band 1164 MHz to 1215 MHz. These values are based on material in a preliminary draft new report in the ITU-R that was expected to become finalized at the November 2010 meetings of ITU-R Working Party 5B and Study Group 5.

Unfortunately, at its November 2010 meeting, Working Party 5B determined that there is one aspect of the preliminary draft new report that requires further input on RNSS receiver characteristics from Working Party 4C (which has responsibility in the ITU-R for RNSS matters). In developing the limits for the modification to Resolution 417, Working Party 5B had not accounted for the possibility that there may be differences in the protection required in a revision by WRC-12 to Resolution 417 (WRC-07) for RNSS receivers used in air-navigation RNSS, and the protection required for certain non-aeronautical RNSS receivers (in particular, non-aeronautical RNSS high-precision receivers). At its November 2010 meeting, rather than complete the new report, Working Party 5B sent a liaison statement to Working Party 4C asking for input from the next meeting of Working Party 4C (in April 2011) that would allow Working Party 5B to evaluate protection requirements from Working Party 4C for non-aeronautical RNSS receivers and complete its work on the draft new report at the June 2011 Working Party 5B meeting.

Because the United States will not be in a position to have a final determination for the e.i.r.p. values should go into *resolves* 4 of the proposal to modify Resolution 417 until its input to the April 2011 Working Party 4C meeting is developed (at the earliest), and because a proposal with a placeholder note such as the one that is included in *resolves* 4 of the example modification of Resolution 417 in Section 1/1.4/2.6.1 of the final CPM Report would be inappropriate for a U.S. WRC-12 proposal, finalization of a proposal to modify Resolution 417 will have to wait a U.S. determination on whether different e.i.r.p. values are required for the protection of non-aeronautical RNSS receivers in the 1164-1215 MHz band.

Interested parties will be participating in the studies in Working Party 4C on this issue, and will work with the Executive Branch to help finalize numbers and text for any change to the draft proposal that may be required.

*IWG-1 Comments on NTIA Proposal on Agenda Item 8.2 on Maritime Issue*

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

**Agenda Item 8.2:** *to recommend to the Council items for inclusion in the agenda of the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution 806 (WRC-07)*

**Background Information:** There is a global requirement for modernization of the Global Maritime Distress and Safety System (GMDSS), as noted by the International Maritime Organization (IMO). IMO COMSAR 14 has initiated scoping exercises, and a work plan to define the requirements for GMDSS modernization. This GMDSS modernization has the endorsement of the IMO Maritime Safety Committee 88.

The International Telecommunication Union Radio Regulations contain many provisions, articles, appendices, and recommendations, associated with the GMDSS. Changes to the Radio Regulations will be necessary to support GMDSS modernization.

IMO is also developing an e-Navigation strategy and implementation plan as endorsed by IMO NAV 56. Initial analysis shows that e-Navigation would require global harmonization of data communications systems. IMO technical bodies have identified that countries could not deploy e-Navigation without an ITU review of the Radio Regulations, to accommodate advanced maritime communication systems.

This proposal does not prejudice United States proposals for the work of WRC-07 affecting the maritime services, including, without limitation, Agenda Items 1.9, 1.10, and 1.23.

**Proposal:**

**MOD** USA/8.2 /1

RESOLUTION 806 (REV. WRC-0712)

**Preliminary aAgenda for the 2015 World Radiocommunication Conference**

The World Radiocommunication Conference (Geneva, ~~2007~~2012),

**Reasons:** To modify the agenda for WRC-15 to add a new item.

**ADD** USA/8.2/2

**2.XYZ** to consider regulatory changes to support implementation of e-Navigation within the maritime mobile service and any possible regulatory action, as necessary, to support GMDSS modernization in accordance with Resolution ~~US~~XYZ (WRC-12).

**Reasons:** Meet international maritime shipping need and IMO requirements for GMDSS modernization and IMO implementation of e-Navigation.

**ADD** USA/8.2/3

## RESOLUTION XYZ (WRC-12)

### **Consideration of implementing regulatory provisions from the Global Maritime Distress Safety System modernization and studies related to e- Navigation**

The World Radiocommunication Conference (Geneva, 2012),

*considering*

- a) that there is an increasing need, on a global basis, for modern Global Maritime Distress Safety System (GMDSS) communication capabilities, for enhanced maritime safety;
- b) that the International Maritime Organization (IMO) has initiated work plans for GMDSS modernization;
- c) that the establishment of the maritime Automatic Identification Systems (AIS) offers potential enhancements to VHF maritime safety communications;
- d) that advanced maritime MF/HF/VHF data systems may be used to deliver Maritime Safety Information (MSI), and GMDSS communications;
- e) that additional global and regional GMDSS satellite providers are being considered by IMO;
- f) that IMO is developing an e-~~Navigation~~ strategy and implementation plan for e-~~Navigation~~, defined as the harmonized collection, integration, exchange, presentation and analysis of marine information onboard and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment;
- g) that GMDSS modernization may be influenced by the development of e-~~Navigation~~,

*recognizing*

- a) that advanced maritime communication systems may support the implementation of GMDSS modernization and e-~~Navigation~~;
- b) that due to the importance of these radio links in ensuring the safe operation of international shipping and commerce, they must be resilient to interference,

*resolves to invite WRC-15*

- 1 to consider appropriate modifications to the Radio Regulations, as necessary, but excluding new allocations, to support GMDSS modernization;
- 2 to consider appropriate modifications to the Radio Regulations, based on ITU R studies and excluding new allocations, for maritime communication systems supporting e-~~Navigation~~ within the maritime mobile service,

*invites ITU-R*

- 1 to conduct, as a matter of urgency, studies to determine the spectrum requirements and potential frequency bands within the existing maritime mobile service allocations suitable to support e-~~Navigation~~;
- 2 to conduct, as a matter of urgency, studies that identify potential regulatory actions required by WRC-15 to accommodate GMDSS modernization,

*further invites*

all members of the Radiocommunication Sector and the International Maritime Organization (IMO), the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), the

International Electrotechnical Commission (IEC) and the World Meteorological Organization (WMO) to contribute to these studies,

*instructs the Secretary-General*

to bring this Resolution to the attention of the International Maritime Organization (IMO), and other international and regional organizations concerned.

**Reasons:** Meet advanced maritime communication systems needs from IMO requirements for GMDSS modernization and IMO implementation of e-Navigation.

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**Annex**

**Subject: 2012 World Radiocommunication Conference Agenda Item 8.2 Proposal to support Global Maritime Distress Safety System modernization and e-Navigation studies.**

**Origin: United States of America**

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**Proposal:** to consider regulatory changes to support implementation of e-Navigation within the maritime mobile service and any possible regulatory action, as necessary, to support GMDSS modernization in accordance with Resolution **USXYZ (WRC-12)**

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**Background/reason:**

The International Telecommunication Union Radio Regulations contain many provisions, articles, appendices, and recommendations, associated with the GMDSS. Changes to the Radio Regulations will be necessary to support GMDSS modernization.

Initial analysis shows that e-Navigation would require global harmonization of data communications systems. International Maritime Organization technical bodies have identified that countries could not deploy e-Navigation without an ITU review of the Radio Regulations, to accommodate advanced maritime communication systems.

**Radiocommunication services concerned:** maritime mobile service, mobile satellite service.

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**Indication of possible difficulties:** None

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**Previous/ongoing studies on the issue:** None

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<b>Studies to be carried out by:</b> ITU-R Study Group 5, Working Party 5B.	<b>with the participation of:</b> Working Party 4C, IMO, IALA, IMSO
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**ITU-R Study Groups concerned:** Study Groups 4 and 5.

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**ITU resource implications, including financial implications (refer to CV126):** -- Minimal.

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**Common regional proposal:** No

**Multicountry proposal:** No

**Number of countries:**

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**Remarks**

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## **Terrestrial Services**

**DOCUMENT WAC/129(08.03.11)**

**IWG-2 Recommendations regarding the US Proposal on Agenda Item 8.2 (MB/BWA)**

**Agenda Item 8.2:** *to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution 806 (WRC-07)*

**Summary**

IWG-2 considered draft US proposals under agenda item 8.2 for a WRC-15 agenda item on mobile broadband or BWA at three meetings. After extensive discussions, IWG-2 members were unable to reach agreement on a recommended US proposal on agenda item 8.2 for this issue. Considering that this WAC is expected to be the last one, IWG-2 does not believe that it is in a position to progress the work further on this agenda item. Consequently, two draft US proposals were developed.

Proposal A (contained in Attachment A to this document) is supported by AT&T, Alcatel-Lucent, Ericsson, Motorola Mobility, Nokia, Qualcomm, Samsung, T-Mobile, TMG, and Verizon and reflects the views of these companies.

Proposal B (contained in Attachment B to this document) is supported by Intelsat, SES World Skies, Globalstar, Boeing, Inmarsat, US GPS Industry Council and Lockheed Martin and reflects the views of these companies.

IWG-2 respectfully submits this document and the two attached draft US proposals to the WRC Advisory Committee for further consideration.

## ATTACHMENT A – PROPOSAL A

Document IWG-2/57 (04.03.11)

### WAC Informal Working Group (IWG)-2

#### United States of America

### PROPOSALS FOR THE WORK OF THE CONFERENCE

#### Agenda item 8.2

*8.2 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution 806 (WRC-07),*

#### **Introduction**

Currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals. Mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace. Currently, 3G technologies are providing services to more than one billion subscribers worldwide and, by 2013, the number of 3G subscribers is projected to reach approximately 2.4 billion. Estimates of worldwide wireless data traffic indicate that it grew by 5,800 percent during the two year period from 2006 to 2008 with slightly decreased rate of 4,500 percent forecast over the next few years. Current projections indicate that by 2014 monthly worldwide mobile data traffic will exceed the total for all of 2008. One 3G carrier in the United States reported in February 2010 that its mobile broadband traffic had grown more than 5,000 percent over the past three years. This strong demand creates an ever-expanding market for 3G-based devices, including 3G feature phones, smartphones, PDAs, tablets, e-readers, gaming devices, consumer electronics devices, and laptops.

For the majority of individuals in developing countries, the first, and the only access to the Internet, is via mobile networks. Other mobile broadband consumers will demand a user experience that is similar to services and applications that they currently experience in wired office and home environments. Thus, the increasing demand for higher data rate services with comparable quality of service to the global mobile broadband consumer will place increasing pressure on finding spectrum resources to support the growth of a variety of mobile applications.

Expanded access to mobile broadband will potentially trigger the creation of innovative new businesses, provide cost-effective connections in developing countries and under-served areas, increase productivity, improve public safety, and allow for the development of mobile telemedicine, telework, distance learning, and other new applications that will transform lives.

#### *Healthcare*

Information technology plays a key role in improving health and health care delivery. Mobile broadband can improve care quality, safety, efficiency, and reduce disparities in health care. Increased access to broadband will serve to engage patients and families in managing their health and enhance care coordination.



Broadband access might help ensure adequate privacy and security of health information. Increased access to broadband wireless systems can dramatically improve the collection, presentation and exchange of health care information, and provide clinicians and consumers the tools to transform care. Technology alone cannot heal, but when appropriately incorporated into care, technology can help health care professionals and consumers make better decisions, become more efficient, engage in innovation, and understand both individual and public health more effectively.

#### *Education*

Broadband can be an important tool to help educators, parents and students meet major challenges in education. A country's economic welfare and long-term success depend on improving learning for all students, and broadband-enabled solutions hold tremendous promise to help reverse patterns of low achievement and lack of access. With broadband, students and teachers can expand instruction beyond the confines of the physical classroom and traditional school day. Broadband can also provide more customized learning opportunities for students to access high-quality, low-cost and personally relevant educational material. Broadband can improve the flow of educational information, allowing teachers, parents and organizations to make better decisions tied to each student's location, needs and abilities. Improved information flow can also make educational product and service markets more competitive by allowing school districts and other organizations to develop or purchase higher-quality educational products and services.

#### *Economic Growth*

Broadband and the Internet make it possible for small businesses to reach new markets and improve their business processes. They have also become a critical pathway for individuals to gain skills and access careers. It is a core infrastructure component for local communities seeking to attract new industries and skilled work forces. As a result, small businesses, workers, and communities must have the broadband infrastructure, training and tools to participate and compete in a changing economy. Broadband can help every community.

#### *Government Services*

Smarter use of broadband can facilitate a vast change in government. Like private companies, government can make its services available 24 hours a day, seven days a week, 365 days a year. Broadband-enabled online services can create paths across government's bureaucratic silos so that someone wanting to access unemployment benefits can deal with the local government and the federal government at the same time. Broadband holds the potential to move all government forms online, eliminating paperwork. Broadband allows for online tutorials for simple government services, which can help free government employees to focus on the most complicated cases. And broadband can increase efficiency by increasing the speed and depth of cooperation across departments and across different levels of government.

#### *Civic Engagement*

Civic engagement starts with an informed public, and broadband can help by strengthening the reach and relevance of mediated and unmediated information. Broadband can enable government to share unmediated information more easily. Providing more information and data to the public about the processes and results of government can strengthen the citizenry and its government. Broadband can also empower citizens to engage their government through new broadband-enabled tools. Broadband has already increased access to information and revolutionized the way citizens interact with each other.

#### *Public Safety*

There are significant benefits, including cost efficiencies and improved technological advancement, if the public safety community can increasingly use applications and devices developed for commercial wireless broadband networks. Ultimately, this system must be flexible, allowing public safety entities to forge incentive-based partnerships with commercial operators and others. This system will allow the public safety community to realize the benefits of commercial technologies, which will reduce costs and ensure the network evolves.

It is envisioned that the above type of future service offerings will open up new opportunities for connectivity, allowing consumers to be situation-conscious, to multi-task, and to access a wide range of telecommunication services supported by packet-based mobile and fixed networks. The mobile

broadband manufacturing industry is evolving towards next generation highly efficient radiocommunication technologies, coupled with an all-IP open Internet network architecture. Through technological innovations such as MIMO and adaptive beam forming antenna systems, the efficiency of spectrum usage has continuously improved. However, the evolution of the technologies will not provide all the necessary capacity to meet the growing demand.

As the use of mobile broadband technologies expands, however, existing mobile service allocations may not be adequate to meet the growing demand. Furthermore, the benefits of global or regional harmonization of frequency bands may not be realized unless adequate spectrum is identified for this purpose. One administration has estimated that a total of 500 MHz of additional spectrum may need to be available for mobile broadband use within the coming 10 years.

For these reasons the United States proposes that the ITU-R undertake studies to determine the amount of spectrum needed to support mobile broadband systems, including IMT, and report the results of these studies to the next WRC for its regulatory actions as required, including new allocations and identifications.

***Attachment***

## ATTACHMENT

### **Proposal for an additional agenda item to consider spectrum requirements, regulatory provisions, and allocations to support mobile broadband systems, including the terrestrial component of International Mobile Telecommunications**

**Subject:** Proposed WRC-15 agenda item to determine the amount of spectrum needed to support the development of mobile broadband systems, including IMT, and modify the Radio Regulations as required, including new allocations and identifications

**Origin:** United States of America

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**Proposal:** The United States proposes that the ITU-R undertake studies to determine the amount of spectrum needed to support mobile broadband systems, including IMT, and report the results of these studies to the next WRC for regulatory actions as required, including new allocations and identifications.

**Background/reason:** Currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals. Mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace. Currently, 3G technologies are providing services to more than one billion subscribers worldwide and, by 2013, the number of 3G subscribers is projected to reach approximately 2.4 billion. Estimates of worldwide wireless data traffic indicate that it grew by 5,800 percent during the two year period from 2006 to 2008 with slightly decreased rate of 4,500 percent forecast over the next few years. Current projections indicate that by 2014 monthly worldwide mobile broadband data traffic will exceed the total broadband data traffic for all of 2008. One 3G carrier in the United States reported in February 2010 that its mobile broadband traffic had grown more than 5,000 percent over the past three years. This strong demand creates an ever-expanding market for 3G-based devices, including 3G feature phones, smartphones, PDAs, tablets, e-readers, gaming devices, consumer electronics devices, and laptops.

It is envisioned that future IMT service offerings will open up new opportunities for connectivity, allowing consumers to be situation-conscious, to multi-task, and to access a wide range of telecommunication services supported by packet-based mobile and fixed networks. The mobile broadband manufacturing industry is evolving towards next generation highly efficient radiocommunication technologies, coupled with an all-IP open Internet network architecture. Through innovations like MIMO and adaptive beam forming antenna systems, interference mitigation, multiple and aggregated carriers, power control, repeaters and scheduling schemes, etc., efficiency of spectrum usage is continuously improving. However, there are practical limitations to the ability to increase spectrum efficiency.

The foundation to permit realization of this vision relies on forward looking regulatory policies, implementing technological advances (such as IMT-Advanced) enabling operators to further increase their capability and capacity within their licensed spectrum, reducing operator and user costs to achieve global affordability and enhancing access to the spectrum needed to support the mobile broadband world of the future.

This agenda item will provide an opportunity to determine the need for spectrum, and to identify suitable spectrum for this purpose through sharing studies of candidate frequency bands. The United States proposes that the ITU-R undertake the studies called for in Resolution [Proposed 2016] below to determine the amount of spectrum needed to support the development of mobile broadband systems, including IMT, and report the results of these studies to the next WRC for its regulatory actions as required, including new allocations and identifications.

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**Radiocommunication services concerned:** Mobile, Fixed, Broadcasting, Satellite, Radiolocation

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**Indication of possible difficulties:** Any spectrum likely to be considered as candidates to support mobile broadband systems is equally likely to be encumbered by other mobile, fixed, broadcast, radiolocation and satellite services.

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***Previous/ongoing studies on the issue:*** Work has been conducted in the past (Reports ITU-R M.2072 and M.2078) and is currently ongoing within Working Party 5D to document the trends and spectrum requirements to support IMT systems for the next 10 years (2012-2022). Several studies have been performed in SG 5 on sharing between mobile broadband technologies and existing services in a number of bands.

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***Studies to be carried out by:*** WP5D

***with the participation of:*** Study Groups 4, 5, 6 and  
7

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***ITU-R Study Groups concerned:*** 5

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***ITU resource implications, including financial implications (refer to CV126):*** Work can be completed within the existing resources of the ITU-R Study Groups, placing no additional burden on ITU-R

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***Common regional proposal:*** No ***Multicountry proposal:*** No  
***Number of countries:***

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***Remarks***

## **RESOLUTION 806 (Rev.WRC-12)**

### **Agenda for the 2015/16 World Radiocommunication Conference**

The World Radiocommunication Conference (Geneva, 2012),

...

**ADD** USA/#A####/#

**#.XYZ** to consider the spectrum requirements and possible regulatory actions, including additional allocations to the mobile service on a primary basis in the frequency range 400 - 6 000 MHz, to accommodate the development of mobile broadband systems, including IMT, based on the results of ITU-R studies, in accordance with Resolution [USA-0#] (WRC-12)

**Reasons:** Available spectrum to meet consumer demand for high-data rate, high-quality mobile services may not be adequate to meet the growing worldwide demand. This agenda item will consider regulatory actions, including additional allocations to the mobile service on a primary basis, to meet this demand.

**ADD** USA/###

## **RESOLUTION [USA-0#](WRC-12)**

### **Consideration of spectrum requirements, regulatory provisions, and additional allocations to the mobile service for mobile broadband systems, including the terrestrial component of International Mobile Telecommunications (IMT), in the frequency range 400 – 6 000 MHz**

The World Radiocommunication Conference (Geneva, 2012),

*considering*

- a) that, currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals;
- b) that mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace;
- c) that currently, there are more than one billion mobile broadband subscribers worldwide and, by 2013, the number of mobile broadband subscribers is projected to reach approximately 2.4 billion;
- d) that the number of mobile broadband subscriptions has grown steadily and in 2008 surpassed those for fixed broadband;
- e) that current projections indicate that by 2014, the monthly worldwide broadband mobile data traffic will exceed the annualized total broadband data traffic for all of 2008;
- f) that broadband applications on mobile devices have increased the bandwidth requirements and expectations of mobile users;
- g) that the availability of new and innovative telecommunication devices has spurred demand for wireless access to the Internet;
- h) that expanded mobile broadband access is expected to trigger new business opportunities, provide the potential for cost-effective connections in developing countries and underserved areas, increase productivity and improve public safety;

- i) that expanded mobile broadband access also is expected to allow for the development of mobile telemedicine, telework, distance learning, and other new applications;
- j) that for global operation and economies of scale, which are key requirements for the success of mobile communications systems, it is desirable to agree on harmonized or common operational, technical and spectrum parameters;
- k) that Question ITU-R 77-6/5 addresses the needs of developing countries in the development and implementation of mobile radiocommunication technology;
- l) that mobile broadband and International Mobile Telecommunications (IMT) services are available in most countries of the world;
- m) that Question ITU-R 238-1/5 addresses broadband wireless access systems for the mobile service;
- n) that Question ITU-R 229-2/5 addresses the future development of IMT;
- o) that IMT encompasses both IMT-2000 and IMT-Advanced collectively as described in Resolution ITU-R 56;
- p) that the technical characteristics of IMT are specified in ITU-R and ITU-T Recommendations, including Recommendation ITU-R M.1457 which contains the detailed specifications of the terrestrial radio interfaces of IMT-2000 and Recommendation ITU-R M.[IMT.RSPEC] which contains the detailed specifications of the terrestrial radio interfaces of IMT-Advanced;
- q) that the parameters and their associated values to be used in sharing and compatibility studies involving IMT systems are given in Report ITU-R M. 2039;
- r) that ITU-R Report M.2031 contains compatibility studies between IMT systems and the GSM 1900 uplink;
- s) that ITU-R Report M.2109 contains sharing studies between IMT Advanced systems and geostationary satellite networks in the fixed-satellite service in the 3 400-4 200 and 4 500-4 800 MHz frequency bands;
- t) that ITU-R Report M.2110 contains sharing studies between IMT systems operating in the 450-470 MHz band and the services having a primary allocation in the 450-470 MHz band and in the adjacent 420-450 MHz and 470-480 MHz bands;
- u) that ITU-R Report M.2111 contains sharing studies between IMT-Advanced systems and the radiolocation service in the 3 400-3 700 MHz bands;
- v) that ITU-R Report M.2112 contains sharing/ compatibility studies between IMT systems and airport surveillance radars and meteorological radar within the 2 700-2 900 MHz band;
- w) that ITU-R Report M.2113 contains sharing studies between IMT-2000 systems and fixed broadband wireless access systems including nomadic applications in the same geographical area in the 2500-2690 MHz band;
- x) that ITU-R Report S.2199 contains compatibility studies between broadband wireless access systems and systems of the fixed satellite service in the 3400-3600 MHz band;
- y) that the ITU recognizes IMT systems, as broadband wireless access systems;
- z) that the radio interface standards of broadband wireless access systems operating in the mobile services below 6 GHz are specified in ITU-R Recommendation ITU-R M.1801;
- aa) that the characteristics of broadband wireless systems operating in the mobile service for use in sharing studies are specified in ITU-R Report M. 2116;
- bb) that the ITU-R Study Group 5 is reviewing and updating M-Series Reports and Recommendations on the characteristics and framework of mobile broadband including IMT systems, taking into account the current state of wireless technology;
- cc) that adequate spectrum availability is a prerequisite for the success of the continuing development of mobile broadband systems, including IMT;

- dd) that there is a long lead time between the identification of frequency bands by World Radiocommunication Conference and the deployment of systems in those bands;
- ee) that it is therefore timely to study demand, technical, spectrum and regulatory issues related to the future development of mobile broadband systems, including IMT,

*recognizing*

- a) the following bands have been identified for IMT in the Radio Regulations (RR) and that this identification does not preclude the use of these bands by any application of the services to which they are allocated or identified and does not establish priority in the Radio Regulations:

<b>Band (MHz)</b>	<b>Footnotes identifying the band for IMT</b>
450-470	5.286AA
698-960	5.313A, 5.317A
1 710-2 025	5.384A, 5.388
2 110-2 200	5.388
2 300-2 400	5.384A
2 500-2 690	5.384A
3 400-3 600	5.430A, 5.432A, 5.432B, 5.433A

- b) the bands that are allocated in the Radio Regulations to services that support safety-of-life systems and operations;
- c) the need to protect existing services when considering frequency bands for possible additional allocations for any service;
- d) the economic benefits that the further development of mobile broadband is expected to bring to countries;
- e) the role that mobile broadband could play in bridging the digital divide, especially in underdeveloped or rural areas of the world;
- f) the need to balance commercial wireless service use of the radio spectrum with other priorities established by individual administrations;
- g) that any additional frequency bands allocated to the mobile service to support mobile broadband applications, including IMT, should not preclude the use of these frequencies for other mobile service applications or establish priority in the Radio Regulations;
- h) the time necessary to develop and agree on the technical, operational, spectrum and regulatory issues associated with the continuing enhancement of mobile services;
- i) the need, particularly in many developing countries and countries with large geographic areas, for the cost-effective implementation of rural broadband services;
- j) the increasing importance of ubiquitous coverage and the particular advantages of lower frequency bands for these purposes;
- k) that bands at higher frequencies are also required in order to provide sufficient bandwidth to meet future demand;
- l) that there may be advantages to identifying new frequency bands adjacent to, or in close proximity to, currently allocated/identified bands,

*noting*

- a) that globally, mobile broadband deployments are overwhelmingly utilizing the technologies contained in ITU-R Recommendations, and these technologies continue to be enhanced;
- b) that through these enhancements, efficiency of spectrum usage is continuously improving. However, there are practical limitations to the ability to increase spectrum efficiency; and spectrum efficiency improvements alone are not likely to address the projected spectrum demand,

*resolves*

- 1 to invite the ITU-R to study technical and operational issues relating to the development of mobile broadband systems, including IMT, in the frequency range 400 – 6 000 MHz, and develop Recommendations and Reports as required;
- 2 to invite the ITU-R to study the expected characteristics of mobile broadband systems including IMT, and develop Recommendations and Reports as required;
- 3 to invite the ITU-R to report, in time for WRC-15, on the results of studies on the spectrum requirements and potential frequency ranges suitable for the development of mobile broadband systems, including IMT;
- 4 that WRC-15 consider, based on the results of ITU R studies, the spectrum requirements and possible regulatory actions, including additional allocations in the frequency range 400 – 6 000 MHz, to support the development of mobile broadband systems, including IMT,

*invites the Director of the Telecommunication Development Bureau*  
to draw the attention of the Telecommunication Development Sector to this Resolution,  
*invites administrations*

- 1 to contribute to the studies mentioned in *resolves* 1 and 2 above by, inter alia, providing information on their use of the existing services in candidate bands;
- 2 to participate in the studies by submitting contributions to ITU-R,

*requests the Secretary-General*

to bring this Resolution to the attention of the International Maritime Organization (IMO), International Civil Aviation Organization (ICAO), World Meteorological Organization (WMO) and other international and regional organizations concerned.

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## ATTACHMENT B – PROPOSAL B

Document IWG-2/64 (09.02.11)  
Comments on Document IWG-2/57 (01.02.11)

### WAC Informal Working Group (IWG)-2

#### United States of America

### PROPOSALS FOR THE WORK OF THE CONFERENCE

#### Agenda item 8.2

*8.2 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution 806 (WRC-07),*

#### **Introduction**

Currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals. Mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace. Currently, 3G technologies are providing services to more than one billion subscribers worldwide and, by 2013, the number of 3G subscribers is projected to reach approximately 2.4 billion. Estimates of worldwide wireless data traffic indicate that it grew by 5,800 percent during the two year period from 2006 to 2008 with decreased rate of 4,500 percent forecast over the next few years. Current projections indicate that by 2014 monthly worldwide mobile data traffic will exceed the total for all of 2008. This strong demand creates an ever-expanding market for 3G-based devices, including 3G feature phones, smartphones, PDAs, tablets, e-readers, gaming devices, consumer electronics devices, and laptops.

For the majority of individuals in developing countries, the first, and the only access to the Internet, is via mobile networks. The projected increase in demand for higher data rate services with quality of service to the global mobile broadband consumer that is comparable to the wired office and home environments will place increasing pressure on finding spectrum resources to support the growth of a variety of mobile applications.

The mobile broadband manufacturing industry is evolving towards next generation highly efficient radiocommunication technologies, coupled with an all-IP open Internet network architecture. Through technological innovations such as MIMO and adaptive beam forming antenna systems, the efficiency of spectrum usage has continuously improved. However, the evolution of the technologies will not provide all the necessary capacity to meet the growing demand.

For these reasons the United States proposes that the ITU-R undertake studies to determine the amount of spectrum needed to support mobile broadband systems, including IMT, and report the results of these studies to the next WRC for its regulatory actions as required, including identification and allocation of new frequency bands.

#### ***Attachment***

